Chapter 12
Nonhighway Modes

Summary Statistics from Tables in this Chapter

Source		
	Passenger-miles, 1998	(millions)
Table 12.1	*Domestic and international air carrier*	*636,410*
Table 12.2	*General aviation*	*13,300*
Table 12.10	*Amtrak*	*5,325*
Table 12.11	*Transit rail*	*13,402*
	Freight ton-miles, 1998	(millions)
Table 12.4	*Domestic waterborne commerce*	*673,000*
Table 12.7	*Class I railroad*	*1,376,802*
	Passenger energy use, 1998	(trillion Btus)
Table 12.1	*Domestic and international air carrier*	*2,550.1*
Table 12.2	*General aviation*	*147.4*
Table 12.10	*Amtrak energy use*	*13.1*
Table 12.11	*Transit rail*	*43.1*
	Freight energy use, 1998	(trillion Btus)
Table 12.4	*Domestic waterborne commerce*	*293.1*
Table 12.7	*Class I railroad*	*502.0*

Table 12.1
Summary Statistics for U.S. Domestic and International Certificated Route Air Carriers (Combined Totals), 1970–98[a]

Year	Revenue aircraft-miles (millions)	Average passenger trip length[b] (miles)	Revenue passenger-miles (millions)	Available seat-miles (millions)	Available seats per aircraft[c]	Passenger load factor (percentage)[d]	Revenue cargo ton-miles (millions)	Energy use (trillion Btu)[e]	Percent domestic of total energy use (percentage)
1970	2,383	678	131,719 [f]	264,904 [f]	111	49.7% [f]	4,994	1,363.4	[g]
1975	2,241	698	173,324	315,823	135	54.9%	5,944	1,283.4	[g]
1976	2,320	704	191,823	338,349	139	56.7%	6,222	1,324.1	[g]
1977	2,418	704	206,082	361,172	143	57.1%	6,587	1,386.2	[g]
1978	2,608	719	236,998	381,113	147	62.2%	7,395	1,436.3	82.0%
1979	2,859	714	269,719	425,411	146	63.4%	7,580	1,534.8	82.5%
1980	2,924	736	267,722	448,479	148	59.7%	7,515	1,489.6	82.4%
1981	2,703	749	260,063	438,778	157	59.3%	7,917	1,429.3	[g]
1982	2,804	766	272,435	455,938	157	59.8%	7,807	1,406.6	81.1%
1983	2,923	765	295,144	480,977	159	61.4%	8,497	1,439.2	84.4%
1984	3,264	759	319,504	534,104	164	59.8%	9,328	1,607.4	[g]
1985	3,462	758	351,073	565,677	163	62.1%	9,048	1,701.5	[g]
1986	3,873	767	378,923	623,073	161	60.8%	10,987	1,847.1	81.4%
1987	4,182	779	417,830	670,871	160	62.3%	13,130	1,945.4	80.4%
1988	4,355	786	437,649	696,337	160	62.9%	14,633	2,049.4	78.5%
1989	4,442	792	447,480	703,888	158	63.6%	16,347	2,087.4	77.0%
1990	4,724	803	472,236	753,211	159	62.7%	16,411	2,191.3	75.9%
1991	4,661	806	463,296	738,030	158	62.8%	16,149	2,069.2	74.5%
1992	4,899	806	493,715	772,869	158	63.9%	17,306	2,144.2	74.1%
1993	5,118	799	505,996	793,959	155	63.7%	19,083	2,168.8	74.4%
1994	5,360	787	537,506	809,240	151	66.4%	21,773	2,249.5	74.3%
1995	5,627	791	558,757	845,012	150	66.1%	23,375	2,310.4	74.0%
1996	5,855	802	596,164	859,720	147	69.3%	24,892	2,396.6	74.0%
1997	6,025	814	619,969	880,607	146	70.4%	27,610	2,494.5	73.4%
1998	6,222	813	636,410	899,115	145	70.8%	28,015	2,550.1	72.8%
				Average annual percentage change					
1970–98	3.5%	0.7%	5.8%	4.5%	1.0%		6.4%	2.3%	
1988–98	3.6%	0.3%	3.8%	2.6%	-1.0%		6.7%	2.2%	

Source:

U.S. Department of Transportation, Bureau of Transportation Statistics, *Air Carrier Traffic Statistics Monthly*, December 1998/1997, Washington, DC, pp. 1–2, and annual.

1970–81 Energy Use - Department of Transportation, Civil Aeronautics Board, *Fuel Cost and Consumption*, Washington, DC, 1981, and annual.

1982–98 Energy Use - Department of Transportation, Research and Special Programs Administration, "Fuel Cost and Consumption Tables," Washington, DC, monthly. Annual totals are derived by summing monthly totals for domestic and international air carriers. (Additional resources: www.bts.gov, www.faa.gov)

[a]Data are for all U.S. air carriers reporting on Form 41.

[b]Scheduled services of domestic operations only. The average passenger trip length for international operations is more than three and a half times longer than for domestic operations.

[c]Available seats per aircraft is calculated as the ratio of available seat-miles to revenue aircraft-miles.

[d]Passenger load factor is calculated as the ratio of revenue passenger-miles to available seat-miles for scheduled and nonscheduled services.

[e]Energy use includes fuel purchased abroad for international flights.

[f]Scheduled services only.

[g]Data are not available.

Table 12.2
Summary Statistics for General Aviation, 1970–98

Calendar year	Total number of aircraft	Hours flown (thousands)	Intercity passenger travel (billion passenger-miles)	Energy use (trillion btu)
1970	131,700[a]	26,030[b]	9.1	94.4
1971	131,100[a]	25,512[b]	9.2	91.6
1972	145,000[a]	26,974[b]	10.0	103.4
1973	148,000[a]	28,599	10.7	90.4
1974	161,502	29,758	11.2	101.4
1975	168,475	30,298	11.4	121.5
1976	177,964	31,950	12.1	130.3
1977	184,294	33,679	12.8	149.7
1978	199,178	36,844	14.1	159.4
1979	210,339	40,432	15.5	167.2
1980	211,045	41,016	14.7	169.0
1981	213,226	40,704	14.6	162.4
1982	209,779	36,457	13.1	170.5
1983	213,293	35,249	12.7	143.9
1984	220,943	36,119	13.0	148.9
1985	196,500	31,456	12.3	144.0
1986	205,300	31,782	12.4	148.0
1987	202,700	30,883	12.1	139.1
1988	196,200	31,114	12.6	148.6
1989	205,000	32,332	13.1	134.0
1990	198,000	32,096	13.0	131.9
1991	196,874	30,490	12.1	120.4
1992	185,650	27,471	10.8	104.7
1993	177,120	24,455	9.9	97.5
1994	172,935	24,092	9.8	95.3
1995	188,089	26,612	10.4	106.6
1996	191,129	26,909	10.6	111.1
1997	192,414	27,713	12.5	121.1
1998	204,710	28,100	13.3	147.4
		Average annual percentage change		
1970–98	1.6%	0.3%	1.4%	1.6%
1988–98	0.4%	-1.0%	0.5%	-0.1%

Sources:

Intercity passenger-miles - Eno Foundation for Transportation, *Transportation in America 1999*, Sixteenth edition, Lansdowne, VA, 2000, p. 47, and annual.

All other- U.S. Department of Transportation, Federal Aviation Administration, *General Aviation Activity and Avionics Survey: Calendar Year 1998*, pp. 1-7, 1-16, 5–2, 5–3, 5-4, and annual. (Additional resources: www.faa.gov)

[a]Active fixed-wing general aviation aircraft only.

[b]Include rotocraft.

In the early seventies, domestic waterborne commerce accounted for over 60% of total tonnage, but by 1994 foreign tonnage grew to more than half of all waterborne tonnage and has continued to grow each year since.

Table 12.3
Tonnage Statistics for Domestic and International Waterborne Commerce, 1970–98
(million tons shipped)

Year	Foreign and domestic total	Foreign total[a]	Domestic total[b]	Percent domestic of total
1970	1,532	581	951	62.1%
1971	1,513	566	947	62.6%
1972	1,617	630	987	61.0%
1973	1,762	767	994	56.4%
1974	1,747	764	983	56.3%
1975	1,695	749	946	55.8%
1976	1,835	856	979	53.4%
1977	1,908	935	973	51.0%
1978	2,021	946	1,075	53.2%
1979	2,073	993	1,080	52.1%
1980	1,999	921	1,077	53.9%
1981	1,942	887	1,054	54.3%
1982	1,777	820	957	53.9%
1983	1,708	751	957	56.0%
1984	1,836	803	1,033	56.3%
1985	1,788	774	1,014	56.7%
1986	1,874	837	1,037	55.3%
1987	1,967	891	1,076	54.7%
1988	2,088	976	1,112	53.3%
1989	2,140	1,038	1,103	51.5%
1990	2,164	1,042	1,122	51.8%
1991	2,092	1,014	1,079	51.6%
1992	2,132	1,037	1,095	51.4%
1993	2,128	1,060	1,068	50.2%
1994	2,215	1,116	1,099	49.6%
1995	2,240	1,147	1,093	48.8%
1996	2,284	1,183	1,101	48.2%
1997	2,334	1,221	1,113	47.7%
1998	2,339	1,245	1,094	46.8%
	Average annual percentage change			
1970–98	1.5%	2.8%	0.5%	
1988–98	1.1%	2.5%	-0.2%	

Source:
U.S. Department of the Army, Corps of Engineers, *Waterborne Commerce of the United States, Calendar Year 1998*, Part 5: National Summaries, New Orleans, Louisiana, 2000, Table 1-1, p. 1-3, and annual. (Additional resources: www.wrc-ndc.usace.army.mil/ndc)

[a]All movements between the U.S. and foreign countries and between Puerto Rico and the Virgin Islands and foreign countries are classified as foreign trade.

[b]All movements between U.S. ports, continental and noncontiguous, and on the inland rivers, canals, and connecting channels of the U.S., Puerto Rico, and the Virgin Islands, excluding the Panama Canal. Beginning in 1996, fish was excluded for internal and intra port domestic traffic.

Table 12.4
Summary Statistics for Domestic Waterborne Commerce, 1970–98

Year	Number of vessels[a]	Ton-miles (billions)	Tons shipped[b] (millions)	Average length of haul (miles)	Energy intensity (Btu/ton-mile)	Energy use (trillion Btu)
1970	25,832	596	949	628.2	545	324.8
1971	26,063	593	944	628.1	506	300.0
1972	27,347	604	985	612.8	522	315.1
1973	28,431	585	990	590.7	576	337.0
1974	29,328	586	979	599.1	483	283.3
1975	31,666	566	944	599.9	549	311.0
1976	33,204	592	976	606.3	468	277.3
1977	35,333	599	969	618.0	458	274.3
1978	35,723	827	1,072	771.6	383	316.6
1979	36,264	829	1,076	770.0	457	378.7
1980	38,792	922	1,074	856.4	358	329.8
1981	42,079	929	1,051	884.0	360	334.5
1982	42,079	886	954	929.0	310	274.9
1983	41,784	920	953	964.6	319	293.7
1984	41,784	888	1,029	862.5	346	307.3
1985	41,672	893	1,011	883.5	446	398.6
1986	40,308	873	1,033	845.3	463	404.0
1987	40,000	895	1,072	835.0	402	370.7
1988	39,192	890	1,106	804.3	361	321.3
1989	39,209	816	1,097	743.2	403	328.6
1990	39,233	834	1,118	745.7	388	323.2
1991	39,233	848	1,074	789.9	386	327.5
1992	39,210	857	1,090	785.7	398	341.0
1993	39,064	790	1,063	742.7	389	307.0
1994	39,064	815	1,093	745.5	369	300.7
1995	39,641	808	1,086	743.6	374	302.2
1996	41,104	765	1,093	699.4	412	314.9
1997	41,419	707	1,106	639.5	415	293.2
1998	42,032	673	1,087	619.0	436	293.1
			Average annual percentage change			
1970–98	1.8%	0.4%	0.5%	-0.1%	-0.8%	-0.4%
1988–98	0.7%	-2.8%	-0.2%	-2.6%	1.9%	-0.9%

Source:
Number of vessels -
1970–92, 1995–98 - U.S. Department of the Army, Corps of Engineers, "Summary of U.S. Flag Passenger and cargo vessels, 1998," New Orleans, LA, 2000, and annual.
1993–94 - U.S. Dept of the Army, Corps of Engineers, *The U.S. Waterway System-Facts*, Navigation Data Center, New Orleans, Louisiana, January 1996.
Ton-miles, tons shipped, average length of haul - U.S. Department of the Army, Corps of Engineers, *Waterborne Commerce of the United States, Calendar Year 199*8 Part 5: National Summaries, New Orleans, LA, 2000, Table 1-4, pp. 1-6, 1-7, and annual.
Energy use - See Appendix A for Table 2.5.
(Additional resources: www.wrc-ndc.usace.army.mil/ndc)

[a]Grand total for self-propelled and non-self-propelled.
[b]These figures are not consistent with the figures on Table 6.4 because intra-territory tons are not included in this table. Intra-territory traffic is traffic between ports in Puerto Rico and the Virgin Islands.

Fifty-six percent of all domestic marine cargo in 1998 were energy-related products (petroleum, coal, coke). The majority of the energy-related products were shipped internally and locally (64%). Barge traffic accounted for 96% of all internal and local waterborne commerce.

Table 12.5
Breakdown of Domestic Marine Cargo by Commodity Class, 1998

	Coastwise		Lakewise		Internal and local		Total domestic[a]		
Commodity class	Tons shipped (millions)	Average haul[b] (miles)	Tons shipped (millions)	Average haul[b] (miles)	Tons shipped (millions)	Average haul[b] (miles)	Tons shipped (millions)	Percentage	Average haul[b] (miles)
Petroleum and products	177	1,300	2	291	196	200	376	34.6	720
Chemicals and related	15	2,064	[c]	322	62	492	78	7.1	800
Crude materials	19	618	94	511	133	348	246	22.6	431
Coal and coke	15	659	22	525	192	365	229	21.1	400
Primary manufactured goods	7	680	3	295	30	865	41	3.8	784
Food and farm products	7	1,696	[c]	929	84	993	92	8.4	1,047
Manufactured equipment	9	1,655	[c]	[c]	12	93	21	1.9	738
Waste and scrap	[c]	667	0	0	5	68	5	0.5	68
Unknown	[c]	2,133	[c]	[c]	[c]	[c]	[c]	0.0	1,684
Total	250	1,261	122	504	715	416	1,087	100.0	620
Barge traffic (million tons)	115		14		684		813		
Percentage by barge	46.0%		11.1%		95.7%		74.8%		

Source:
U.S. Department of the Army, Corps of Engineers, *Waterborne Commerce of the United States, Calendar Year 1998*, Part 5: National Summaries, New Orleans,
Louisiana, 2000, Tables 2-1, 2-2, and 2-3, pp. 2-1—2-8, and annual.
(Additional resources: www.wrc-ndc.usace.army.mil/ndc)

Note:
Coastwise applies to domestic traffic receiving a carriage over the ocean or between the Great Lakes ports and seacoast ports when having a carriage over the ocean. Lakewise applies to traffic between United States ports on the Great Lakes. Internal applies to traffic between ports or landings wherein the entire movement takes place on inland waterways. Local applies to movements of freight within the confines of a port.

[a]Does not include intra-territory tons.
[b]Calculated as ton-miles divided by tons shipped.
[c]Negligible.

The Interstate Commerce Commission designates Class I railroads on the basis of annual gross revenues. In 1998, nine railroads were given this classification.

Table 12.6
Class I Railroad Freight Systems in the United States
Ranked by Revenue Ton-Miles, 1998

Railroad	Revenue ton-miles (billions)	Percent
Burlington Northern and Sante Fe Railway	469	34.1%
Union Pacific Railroad Company	432	31.4%
CSX Transportation	166	12.1%
Norfolk Southern Corporation	133	9.7%
Consolidated Rail Corporation (Conrail)	101	7.3%
Illinois Central Railroad Company	23	1.7%
Kansas City Southern Railway Company	22	1.6%
Soo Line Railroad Company	20	1.5%
Grand Trunk Western Railroad Inc.	9	0.7%
Total	1,375	100.0%

Source:
Association of American Railroads, *Railroad Facts*, 1999 Edition, Washington, DC, October 1999, p. 66. (Additional resources: www.aar.org)

Table 12.7
Summary Statistics for Class I Freight Railroads, 1970–98

Year	Number of locomotives in service[a]	Number of freight cars (thousands)[b]	Train-miles (millions)	Car-miles (millions)	Tons originated[c] (millions)	Average length of haul (miles)	Revenue ton-miles (millions)	Energy intensity (Btu/ton-mile)	Energy use (trillion Btu)
1970	27,077[d]	1,424	427	29,890	1,485	515	764,809	691	528.1
1971	27,160[d]	1,422	430	29,181	1,391	507	739,723	717	530.2
1972	27,044	1,411	451	30,309	1,448	511	776,746	714	554.4
1973	27,438	1,395	469	31,248	1,532	531	851,809	677	577.1
1974	27,627	1,375	469	30,719	1,531	527	850,961	681	579.1
1975	27,855	1,359	403	27,656	1,395	541	754,252	687	518.3
1976	27,233	1,332	425	28,530	1,407	540	794,059	680	540.3
1977	27,298	1,287	428	28,749	1,395	549	826,292	669	552.7
1978	26,959	1,226	433	29,076	1,390	617	858,105	641	550.4
1979	27,660	1,217	438	29,436	1,502	611	913,669	618	564.8
1980	28,094	1,168	428	29,277	1,492	616	918,621	597	548.7
1981	27,421	1,111	408	27,968	1,453	626	910,169	572	521.0
1982	26,795	1,039	345	23,952	1,269	629	797,759	553	440.8
1983	25,448	1,007	346	24,358	1,293	641	828,275	525	435.1
1984	24,117	948	369	26,409	1,429	645	921,542	510	470.0
1985	22,548	867	347	24,920	1,320	664	876,984	497	436.1
1986	20,790	799	347	24,414	1,306	664	867,722	486	421.5
1987	19,647	749	361	25,627	1,372	688	943,747	456	430.3
1988	19,364	725	379	26,339	1,430	697	996,182	443	441.4
1989	19,015	682	383	26,196	1,403	723	1,013,841	437	442.6
1990	18,835	659	380	26,159	1,425	726	1,033,969	420	434.7
1991	18,344	633	375	25,628	1,383	751	1,038,875	391	405.8
1992	18,004	605	390	26,128	1,399	763	1,066,781	393	419.2
1993	18,161	587	405	26,883	1,397	794	1,109,309	389	431.6
1994	18,505	591	441	28,485	1,470	817	1,200,701	388	465.4
1995	18,812	583	458	30,383	1,550	843	1,305,688	372	485.9
1996	19,269	571	469	31,715	1,611	842	1,355,975	368	499.4
1997	19,684	568	475	31,660	1,585	851	1,348,926	370	499.7
1998	20,261	576	475	32,657	1,649	835	1,376,802	365	502.0
				Average annual percentage change					
1970–98	-1.0%	-3.2%	0.4%	0.3%	0.4%	1.7%	2.1%	-2.3%	-0.2%
1988–98	0.5%	-2.3%	2.3%	2.2%	1.4%	1.8%	3.3%	-1.9%	1.3%

Source:

Association of American Railroads, *Railroad Facts*, 1999 Edition, Washington, DC, October 1999, pp. 27, 28, 33, 34, 36, 48, 50, 60.

(Additional resources: www.aar.org)

[a]Does not include self-powered units. From 1972 to 1979, the number of locomotives used in Amtrak passenger operations are subtracted from the total locomotives used in passenger and freight service to calculate the number of Class I locomotives in service.

[b]Does not include private or shipper-owned cars.

[c]Tons originated is a more accurate representation of total tonnage than revenue tons. Revenue tons often produces double-counting of loads switched between rail companies.

[d]Data represent total locomotives used in freight and passenger service. Separate estimates are not available.

The "other" category, which consists primarily of intermodal traffic, has grown 126% in carloads from 1974 to 1998. Coal now accounts for one quarter of all carloads.

Table 12.8
Railroad Revenue Carloads by Commodity Group, 1974 and 1998

Commodity group	Carloads (thousands)		Percent distribution		Percentage change
	1974	1998	1974	1998	1974–98
Coal	4,544	7,027	17.0%	27.3%	54.6%
Farm products	3,021	1,404	11.3%	5.5%	-53.5%
Chemicals and allied products	1,464	1,680	5.5%	6.5%	14.8%
Nonmetallic minerals	821	1,256	3.1%	4.9%	53.0%
Food and kindred products	1,777	1,282	6.6%	5.0%	-27.9%
Lumber and wood products	1,930	645	7.2%	2.5%	-66.6%
Metallic ores	1,910	311	7.1%	1.2%	-83.7%
Stone, clay and glass	2,428	475	9.1%	1.8%	-80.4%
Pulp, paper, and allied products	1,180	547	4.4%	2.1%	-53.6%
Petroleum products	877	483	3.3%	1.9%	-44.9%
Primary metal products	1,366	671	5.1%	2.6%	-50.9%
Waste and scrap material	889	581	3.3%	2.3%	-34.6%
Transportation equipment	1,126	1,546	4.2%	6.0%	37.3%
Others	3,451	7,797	12.9%	30.3%	125.9%
Total	26,784	25,705	100.0%	100.0%	-4.0%

Source:
1974 - Association of American Railroads, *Railroad Facts*, 1976 Edition, Washington, DC, 1975, p. 26.
1997 - Association of American Railroads, *Railroad Facts*, 1999 Edition, Washington, DC, October 1999, p. 25.
(Additional resources: www.aar.org)

The number of trailers and containers moved by railroads has increased more than four-fold from 1965 to 1998. Containerization has increased in recent years, evidenced by the 135% increase in the number of containers from 1988 to 1997. According to the 1997 Commodity Flow Survey, 5% of all freight ton-miles are rail intermodal shipments (truck/rail or rail/water). See Table 8.11 for details.

Table 12.9
Intermodal Rail Traffic, 1965–98

Year	Trailers & containers	Trailers	Containers
1965	1,664,929	[a]	[a]
1970	2,363,200	[a]	[a]
1975	2,238,117	[a]	[a]
1980	3,059,402	[a]	[a]
1981	3,150,522	[a]	[a]
1982	3,396,973	[a]	[a]
1983	4,090,078	[a]	[a]
1984	4,565,743	[a]	[a]
1985	4,590,952	[a]	[a]
1986	4,997,229	[a]	[a]
1987	5,503,819	[a]	[a]
1988	5,779,547	3,481,020	2,298,527
1989	5,987,355	3,496,262	2,491,093
1990	6,206,782	3,451,953	2,754,829
1991	6,246,134	3,201,560	3,044,574
1992	6,627,841	3,264,597	3,363,244
1993	7,156,628	3,464,126	3,692,502
1994	8,128,228	3,752,502	4,375,726
1995	8,070,309	3,519,664	4,550,645
1996[b]	8,153,942	3,320,312	4,833,630
1997[b]	8,695,860	3,453,081	5,242,779
1998[b]	8,772,663	3,353,032	5,419,631
Average annual percentage change			
1965–98	5.2%	[a]	[a]
1988–98	4.3%	-0.4%	9.0%

Source:
Association of American Railroads, *Railroad Facts*, 1999 edition, Washington, DC, October 1999 p.26.
(Additional resources: www.aar.org)

[a] Data are not available.

[b] The Grand Trunk Western Railroad and the Soo Line Railroad Company data are excluded.

Table 12.10
Summary Statistics for the National Railroad Passenger Corporation (Amtrak), 1971–98

Year	Number of locomotives in service	Number of passenger cars	Train-miles (thousands)	Car-miles (thousands)	Revenue passenger-miles (millions)	Average trip length (miles)	Energy intensity (Btu per revenue passenger-mile)	Energy use (trillion Btu)
1971	[a]	1,165	16,537	140,147	1,993	188	[a]	[a]
1972	285	1,571	26,302	213,261	3,039	183	[a]	[a]
1973	352	1,777	27,151	239,775	3,807	224	3,756	14.3
1974	457	1,848	29,538	260,060	4,259	233	3,240	13.8
1975	355	1,913	30,166	253,898	3,753	224	3,677	13.8
1976	379	2,062	30,885	263,589	4,268	229	3,397	14.5
1977	369	2,154	33,200	261,325	4,204	221	3,568	15.0
1978	441	2,084	32,451	255,214	4,154	217	3,683	15.3
1979	437	2,026	31,379	255,129	4,867	226	3,472	16.9
1980	448	2,128	29,487	235,235	4,503	217	3,176	14.3
1981	398	1,830	30,380	222,753	4,397	226	2,979	13.1
1982	396	1,929	28,833	217,385	3,993	220	3,156	12.6
1983	388	1,880	28,805	223,509	4,227	223	2,957	12.5
1984	387	1,844	29,133	234,557	4,427	227	3,027	13.4
1985	382	1,818	30,038	250,642	4,785	238	2,800	13.4
1986	369	1,793	28,604	249,665	5,011	249	2,574	12.9
1987	381	1,850	29,515	261,054	5,361	259	2,537	13.6
1988	391	1,845	30,221	277,774	5,686	265	2,462	14.0
1989	312	1,742	31,000	285,255	5,859	274	2,731	16.0
1990	318	1,863	33,000	300,996	6,057	273	2,609	15.8
1991	316	1,786	34,000	312,484	6,273	285	2,503	15.7
1992	336	1,796	34,000	307,282	6,091	286	2,610	15.9
1993	360	1,853	34,936	302,739	6,199	280	2,646	16.4
1994	411	1,874	34,940	305,600	5,869	276	2,351	13.8[b]
1995	422	1,907	31,579	282,579	5,401	266	2,314	12.5[c]
1996	348	1,501	30,542	277,750	5,066	257	2,389	12.1[c]
1997	292	1,572	32,000	287,760	5,166	255	2,458	12.7[c]
1998	362	1,347	32,926	315,823	5,325	251	2,460	13.0[c]
				Average annual percentage change				
1971–98	0.9%[d]	0.5%	2.6%	3.1%	3.7%	1.1%	-1.7%[d]	-0.3%[d]
1988–98	-0.8%	-3.1%	0.9%	1.3%	-0.7%	-0.5%	0.0%	-0.7%

Source:

1971–83- Association of American Railroads, Economics and Finance Department, *Statistics of Class I Railroads*, Washington, DC, and annual.

1984–88- Association of American Railroads, *Railroad Facts*, 1988 Edition, Washington, DC, December 1989, p. 61, and annual.

1989–93- Personal communication with the Corporate Accounting Office of Amtrak, Washington, D.C.

1994–98- Number of locomotives in service, number of passenger cars, train-miles, car-miles, revenue passenger-miles, and average trip length - Association of American Railroads, *Railroad Facts*, 1999 Edition, Washington, DC, 1999, p. 77.

Energy use - Personal communication with the Amtrak, Washington, DC, and estimates thereafter based on train-miles.

(Additional resources: www.amtrak.com, www.aar.org)

[a] Data are not available.

[b] Energy use for 1994 on is not directly comparable to earlier years. Some commuter rail energy use may have been inadvertently included in earlier years.

[c] Estimated using train-miles.

[d] Average annual percentage change is from earliest year available to 1998.

Table 12.11
Summary Statistics for Rail Transit Operations, 1970–98[a]

Year	Number of passenger vehicles	Vehicle-miles (millions)	Passenger trips (millions)[b]	Estimated passenger-miles	Average trip length (miles)[c]	Energy intensity (Btu/passenger-mile)[d]	Energy use (trillion Btu)
1970	10,548	440.8	2,116	12,273	[e]	2,453	30.1
1971	10,550	440.4	2,000	11,600	[f]	2,595	30.1
1972	10,599	417.8	1,942	11,264	[f]	2,540	28.6
1973	10,510	438.5	1,921	11,142	[f]	2,460	27.4
1974	10,471	458.8	1,876	10,881	[f]	2,840	30.9
1975	10,617	446.9	1,797	10,423	[f]	2,962	31.1
1976	10,625	428.1	1,744	10,115	[f]	2,971	30.3
1977	10,579	381.7	1,713	10,071	5.8	2,691	27.1
1978	10,459	383.0	1,810	10,722	5.9	2,210	23.7
1979	10,429	399.6	1,884	11,167	5.9	2,794	31.2
1980	10,654	402.2	2,241	10,939	4.9	3,008	32.9
1981	10,824	436.6	2,217	10,590	4.8	2,946	31.2
1982	10,831	445.2	2,201	10,428	4.6	3,069	32.0
1983	10,904	423.5	2,304	10,741	4.7	3,212	34.5
1984	10,848	452.7	2,388	10,531	4.4	3,732	39.3
1985	11,109	467.8	2,422	10,777	4.4	3,461	37.3
1986	11,083	492.8	2,467	11,018	4.5	3,531	38.9
1987	10,934	508.6	2,535	11,603	4.6	3,534	41.0
1988	11,370	538.3	2,462	11,836	4.8	3,565	42.2
1989	11,261	553.4	2,704	12,539	4.6	3,397	42.6
1990	11,332	560.9	2,521	12,046	4.8	3,453	41.6
1991	11,426	554.8	2,356	11,190	4.7	3,727	41.7
1992	11,303	554.1	2,396	11,441	4.8	3,575	40.9
1993	11,286	549.8	2,234	10,936	4.9	3,687	42.2
1994	11,192	565.8	2,453	11,501	4.8	3,828	44.0
1995	11,156	571.8	2,284	11,419	5.0	3,818	43.6
1996	11,341	580.7	2,417	12,484	5.2	3,444	43.0
1997	11,471	598.9	2,692	13,091	4.9	3,253	42.6
1998	11,506	609.1	2,668	13,402	5.0	3,216	43.1
			Average annual percentage change				
1970–98	0.3%	1.2%	0.8%	0.3%	-0.7%[f]	1.0%	1.3%
1988–98	0.1%	1.2%	0.8%	1.3%	0.4%	-1.0%	0.2%

Source:
American Public Transit Association, *2000 Transit Fact Book*, Washington, DC, March 2000, pp. 69, 70, 78, 83. (Additional resources: www.apta.com)
Energy use - See Appendix A for Table 2.5.

[a]Heavy rail and light rail. Series not continuous between 1983 and 1984 because of a change in data source by the American Public Transit Association (APTA). Beginning in 1984, data provided by APTA are taken from mandatory reports filed with the Urban Mass Transit Administration (UMTA). Data for prior years were provided on a voluntary basis by APTA members and expanded statistically.

[b]1970–79 data represents total passenger rides; after 1979, data represents unlinked passenger trips.

[c]Calculated as the ratio of passenger-miles to passenger trips.

[d]Large system-to-system variations exist within this category.

[e]Data are not available.

[g]Average annual percentage change is calculated for years 1977-98.